and the profile slanting down more abruptly, less rounding from the nape. They likely represent a distinct race, and as there seems to be no name available for same, *Caranx hippos tropicus,* new subspecies, is here proposed, type No. 3889, American Museum of Natural History, Para, Brazil, E. C. Starks, 277 mm. in length to base of caudal, chord of curve of lateral line 1.17 in straight part, scutes 26.

We have two rather large specimens from the mouth of the Congo, Africa (Banana) collected by Messrs. Lang and Chapin, 398 and 420 mm. in length, which seem to be the same as the Brazilian race, as they have chord of curve of lateral line 0.9 and 1.16 in straight part, scutes 28 and 29. Their profiles are less rounding than in the North American race, being more like those of the Brazilian fish, though not so steep.

Whereas *Caranx hippos* (Linn.) is reported from the Indian and western Pacific Oceans fishes so identified from there seem to be specifically different.

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NOTES ON LIZARDS OF THE CANAL ZONE, ISTHMUS OF PANAMA

Common Ground Lizard

Ground Lizards (probably *Ameiva ameiva praesignis*) are very numerous on the Canal Zone and can be seen at any time during the day crawling cautiously about in the grass in search of insects. They are found along the roads and trails and in open patches of land, but are seldom met with in the dense jungle. They enjoy basking in the hot sunshine on boards, stones and pieces of dead wood.

A small strain will sever the tail from the body, but it is soon reproduced and they are sometimes seen with two tails where the original tail was only partially severed. The maximum length of this species is about 15 inches.

The skin is shed in small patches in the first part of the Dry Season during late December and in

January; and the lizards seem to be more sluggish at this time.

They are vigorous and active when capturing their prey. I observed one pulling a thirteen-inch Coecilian (perhaps *Herpele ochrocephala*) from the ground and the lizard showed great concern when I interfered. The variety and extent of their food is well illustrated by the following stomach examination of a specimen taken at Gatun, C. Z., on January 8, 1909. One small spider, one small Acridid; about 30 larvae of Coleoptera and Lepidoptera (from one-half to one and one-half inches in length); and three pupae of Lepidoptera about three-quarters of an inch long.

Basilisk.

Before the flooding of the land for the Gatun Lake, the basilisks (probably *Basiliscus americanus*) were very numerous in the fresh-water lagoons in the lowlands along the Chagres River; but they were seldom seen on the Pacific side of the Canal Zone and after the water came up in the Gatun Lake basin, their homes of centuries were destroyed and their numbers were considerably reduced.

Their novel performance of running on the surface of the water was highly interesting. By drawing up their fore legs clear of the water and paddling rapidly with their hind legs and steering with their tail they could attain a dog-trot speed and go from 30 to 60 feet on the surface. If the rapid alternate thrusts of the hind legs were interrupted, they would sink and then resort to swimming. The hind legs have large muscles and the toes are long with a large webbed area. The muscles of the several vertebral segments of the tail are firmly connected and the axis of the vertebrae is strong, which does not permit the tail to be broken off except by a very violent jerk. Their maximum length varies from twenty to twenty-six inches.

When at rest they assume a motionless, vertical position usually on a dead, leafless branch extending out of the water, or on a tree of small diameter growing in the lagoons; and their color, like the slimy wood

on which they rest, coupled with the algae-green hue and the knot-like appearance of the head, and the fungus-like dorsal fringe on the mature males, gives them a similarity in form and color to their surroundings which is a decided protection; and of this they seem to be aware, for they can be approached within ten feet when they are in this motionless posture.

They are fierce looking in their bold poses, especially the males with their dorsal fringe and the contractile, membranous bag on the crown of the head, but they are harmless and will only bite when in severe pain, and then they can only scratch the surface of the skin.

They live about the surface of the water and enter it for food and protection, but are not seen in trees or shrubbery except when they climb up a foot or two to rest on small trunks growing out of the water.

The variety of their food is illustrated by the following stomach examinations: One male specimen from Gatun, C. Z., January 8, 1909: three small larvae of Lepidoptera and several small Coleoptera. One male specimen from Gatun, C. Z., March 21, 1909: several adult Odonata, one small Acrididae, and some red fruit similar to cranberries. One female specimen from Gatun, C. Z., February 11, 1909: several adult Odonata. One female specimen from Gatun, C. Z., February 11, 1909: one fish about two inches long with its head bitten off.

They catch the adult Odonata by assuming a vertical, motionless position on a dead branch sticking out of the water, with their mouth just over the top of the stick. The habit of the Odonata is to rest on the tops of dead reeds and branches on the water surface and when they choose the head of a basilisk to rest on, the results are disastrous.

The ovaries of three specimens taken at Gatun, C. Z., in late December, 1908, and in early January, 1909, contained the following: Specimen 1: Ten, pearl-white, ellipsoidal eggs, one inch long and one-half inch in diameter. Specimen 2: Four, pearl-white, ellipsoidal eggs, one inch long and one-half

inch in diameter. Specimen 3: Seven, pearl-white, globular eggs about one-quarter of an inch in diameter.

Iguana.

The iguana (likely *Iguana tuberculata*) is found distributed over the Isthmus of Panama in matted vines and on low and lofty trees. In certain groups of shrubbery and trees they form colonies and remain throughout the year within a few hundred feet of their favorite haunts. They choose trees and groups of shrubs near salt or fresh water where a clay bank will furnish them a place to burrow and lay their eggs; but colonies can be found along small mountain streams which have no water in the Dry Season. In the rains they go into the thick-leaved branches and in the midday sun they bask on the limbs and rocks. When disturbed in the lofty trees, they will often make a clear drop of 60 feet or more, with a resounding thud, and quickly raise the tail and fore feet off of the ground and run with great rapidity on their hind legs. They are entirely harmless and unable to bite, as their teeth are suitable only for biting off leaves, which is their food. In the first weeks of the Dry Season in December and January their old skin dries up and falls off in small patches. The vertebrae of the tail are strongly connected and it would take considerable effort to pull it apart.

They attain a maximum length of about five feet and the following list will indicate the sizes usually seen: Three specimens from Gatun, C. Z., 4 ft. 4 in., 4 ft. 11 in., 3 ft. 10 in.; one specimen from La Cruces, C. Z., 4 ft. 2 in.; one specimen from La Boca, C. Z., 3 ft. 11 in.; five specimens from Naos Island, C. Z., 4 ft. 3 in., 3 ft. 2 in., 4 ft. 8 in., 3 ft. 9 in., 3 ft. 2 in.

The eggs are laid in burrows about five inches in diameter which are tunneled several feet in a general horizontal direction in the clay banks. One burrow uncovered near Gamboa, C. Z., February 16, 1916, contained 24 eggs of a dull white color with ellipsoidal shape, 1⅝ inches long and about ⅞ of an inch in diameter.

The ovaries of three specimens taken contained eggs as follows: One specimen from Gatun, C. Z., December 19, 1908, twenty-one, yellowish, spherical eggs, 5/8 of an inch in diameter; one specimen from Gatun, C. Z., February 14, 1909, forty-one, white, ellipsoidal eggs, 1 5/8 inches long and 7/8 of an inch in diameter; one specimen from Gatun, C. Z., March 5, 1909, forty-three, white, ellipsoidal eggs, 1 5/8 inches long and 7/8 of an inch in diameter. When the females are carrying eggs, they are extremely sluggish and can be easily approached.

In the meat markets of Panama, the live iguanas with their hind legs tied together are offered for sale in large numbers, as are also the eggs.

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THE MATING OF WATER SNAKES

In the month of May I was fishing along the northern bank of Towanda Creek, in the village of Canton, Pa. A branch of a bush on the southern bank, about thirty feet away, began shaking vigorously at intervals of two or three seconds. I watched it closely, expecting to see a bird, but was surprised to see instead the outline of a snake, which appeared to be having a series of periodic spasms. It was not convenient to cross at that point to investigate, so I continued fishing down-stream. A half-mile below I observed the same phenomenon in a bush on my side of the stream.

Stalking very slowly, I approached within six feet of the bush, which overhung the water. On one branch was stretched a snake, apparently three feet long or a little more, and perhaps one and one-half inches in diameter at the thickest part. I recognized it as being what is called in that region a common water snake.*

Upon her, with a portion of his tail wrapped about her, lay a smaller snake of the same species. At intervals of three to five seconds, one or both—I could not distinguish which—appeared to contract violent-

**Natrix sipedon*—Ed.